AN OUNCE OF LOYALTY FOR A POUND OF CLEVERNESS: ALLEGIANCE AND COMPETENCE IN AUTHORITARIAN REGIMES

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Simon Demers
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Name: **Simon Demers**

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Examining Committee:

Chair: Ken Kasa

Alexander Karaivanov
Senior Supervisor

Anke Kessler
Supervisor

Phillip Curry
Internal Examiner

Date Approved: Thursday July 28, 2005

SIMON FRASER UNIVERSITY

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Abstract

This paper presents a simple framework illustrating how loyalty considerations may affect the ruler's choice of an adviser or a minister. The model suggests that the optimal competence level of the adviser should decrease with the bribe offered by the opposition group and the most severe punishment available to the dictator. The reward offered by the dictator increases with the bribe but decreases in the size of the worst available punishment. Paradoxically, this implies that higher incomes could be paid to less competent advisers in regimes where bribes are more generous or plotting groups are more affluent. Also, more brutal despots would find it optimal to hire less competent advisers. This supports the widely held view that constraints on the executive can improve a country's economic performance.

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Chapter 1

Introduction

Because our understanding of why some societies produce so much more output than others is closely related to the question of why some societies have worse economic institutions than others (Acemoglu, Johnson and Robinson, 2002), theories aiming to explain the sources of good institutions or the workings of the institutional mechanisms are highly relevant in the context of economic development. Without a doubt, the political organization of a country and the internal structure of its government are central determinants of institutional quality. Most institutions evolve from, are managed by or are implemented through the political regime already in place. Moreover, as was eloquently shown by Harberger (1993), the most significant economic policies are often designed and then put in place by a couple of key individuals holding senior positions inside the government or by outstanding leaders willing to take risks and make personal sacrifices. Nevertheless, given the fact that many authoritarian regimes distinguish themselves more by their ineptitude and lack of vision, it appears pertinent to study the factors which allowed notoriously inept people to hold key positions inside Stalin's inner circle of advisers, Hitler's Third Reich and Saddam's government, for example. Reciprocally, this would allow us to examine more closely the context in which bold and competent people like Roberto Campos in Brazil and Carlos Salinas in Mexico obtained senior-level positions in the first place.

Treason and incompetence are major problems for rulers. Julius Caesar, Napoleon Bonaparte, Adolf Hitler, Saddam Hussein and many other autocrats, before and after them, were acquainted with both. For one, betrayal by a close associate can cause a dictator to lose political power or even his own life. On the other hand, incompetent ministers and advisers are more likely to waste resources or implement useless (sometimes

dangerous) policies. Taken individually, disloyalty and incompetence are obviously undesirable from the point of view of a dictator. Combined however, they can lead to deadly outcomes for the principal. It is now believed that when Joseph Stalin collapsed on March 1st, 1953, he did not receive immediate medical care because his closest advisers Georgi Malenkov and Nikita Khrushchev first thought he was drunk and would eventually regain consciousness. However, some observers speculated that the advisers may have failed to ask for medical attention because they were actually suspecting Stalin of planning a political purge in which most of them would be swept aside (Urschel, 2003). In a twist of fate, Stalin was therefore killed both by the ineptitude and the treacherousness of his advisers. Although betrayal and incompetence do not always lead to such spectacular consequences, the study of why these problems occur and how they are related is relevant from an economic point of view because it could offer important insights into the internal structure of dictatorial regimes. It could also shed a new light on the behaviour displayed by some rulers.

This paper therefore investigates what determines the competence of a typical adviser in a given regime and how the political and economic context may affect the ruler's optimal strategy. Inspired by the recent contribution of Egorov and Sonin (2005), we propose a simple framework which allows us to examine how loyalty considerations may affect the ruler's choice of an adviser or a minister. Ultimately, we reach two seemingly counter-intuitive results. First, it is shown that the dictator could find it optimal to pay a higher income to less competent advisers in regimes where bribes are more generous or plotting groups are more affluent. Secondly, brutal despots with a larger set of available punishments could find it optimal to hire less competent advisers. This result is consistent, for example, with the observation that absolute rulers tend to associate themselves with relatively incompetent ministers whereas incompetence is arguably less prevalent in democratic governments where the executive is constrained by laws and constitutional rights. It would justify why Saddam Hussein chose an inept bureaucrat like Muhammed al-Sahhad (a.k.a. Comical Ali) to become the Iraqi Information Minister but the visionary Roberto Campos was appointed Planning Minister by the Brazilian President Humberto Castelo Branco in 1964.

Chapter 2

The Literature on Loyalty and Competence

Recent contributions to the economics literature have suggested that principals may indeed face a trade-off between the loyalty and the competence of the agents they hire.

The model presented by Burkart, Panunzi and Shleifer (2002), for example, is driven by the idea that family members are more likely to protect the interests of the shareholders but generally lack the competence of a professional manager. The separation of ownership from management implies that there may be incentive problems associated with a professional manager. On the other hand, family members do not generally have the same qualifications as a professional. As a consequence, the owner of a firm who is looking for a successor must balance the principal costs (loyalty) and the principal benefits (competence) of hiring a professional. In this case, Burkart, Panunzi and Shleifer (2002) use the fact that the loyalty of the firm's manager comes at the price of his competence.

Naturally, a similar dilemma is also expected to apply to the public sector. In a non-technical paper published by the *The Brookings Institution*, Edwards (2001) argues that the loyalty-competence trade-off continues to be relevant in the context of U.S. presidential appointments. Potential candidates with the intellectual skills, managerial skills and expertise required by most senior positions inside the U.S. government do not necessarily have the level of commitment or political loyalty expected by the White House. Therefore, presidential appointees may be able to compensate their lack of skills by an untarnished commitment to the President's program. This would explain, for example, why only 11

percent of the senior-level appointees under Ronald Reagan, George Bush and Bill Clinton maintained that they represented the best and brightest America has to offer (Edwards, 2001). As Edwards (2001) points out, the set of competent candidates may be different from the set of loyal and politically devoted people. For this reason, the White House may be forced to choose which set it selects the appointees from.

More recently, Egorov and Sonin (2005) (ES hereafter) also have investigated the possible substitution between loyalty and competence. To explain why dictators tend to hire more mediocre advisers, they present a framework in which a dictator considers hiring a vizier to help him decide whether he should protect himself against a plot to overthrow him. Their main insight is that the incompetence of an adviser may actually be the source of his loyalty. Since better informed advisers are more able to discriminate among plotters, they are also more risky subordinates in the sense that, for a given bribe, they expect a higher payoff on average when they betray the dictator. Everything else being equal, less competent advisers therefore have the advantage of being more loyal, even though their predictions will turn out to be accurate less often on average.

Compared to the previous attempts to relate competence with loyalty, the approach used by ES has the advantage of highlighting the fact that loyalty and competence are not two mutually exclusive qualities (i.e. people who have competence do not usually have loyalty) but instead intertwined characteristics (i.e. people are loyal *because* they are incompetent). Whereas Burkart, Panunzi and Shleifer (2002) and Edwards (2001) argue that people who are competent are usually not the same people who are intrinsically loyal, ES explain the agent's loyalty using his competence level. Accordingly, the quality which makes the agent desirable from the point of view of the dictator is also the source of his treachery (Egorov and Sonin, 2005). In other words, ES endogenize what Burkart, Panunzi and Shleifer (2002) and Edwards (2001) took as being exogenously given. In the end, this means that the principal must balance the costs (higher probability of betrayal) with the benefits of competence (less waste).

ES set up their model such that the dictator can face two distinct types of threats (or plots) and must choose, without knowing which kind of plot he is truly facing, whether to buy extra protection or not. The problem is that the costly precautionary measures are useful only when the plot is *strong* but are not required when the plot is *weak*. Therefore, it is in the best interest of the dictator to try to discriminate between plotters. Because he does not himself observe the type of threat, the dictator hires someone from a pool of

advisers with various competence levels. Although the adviser is imperfectly informed in general, the model is built such that the probability of observing a strong threat when the plot is actually weak will be decreasing in the competence of the adviser. In other words, a more competent adviser perceives a strong threat less often when the plot is really weak.

The dilemma faced by the dictator comes from the fact that a competent adviser may be tempted to use his informational advantage and lie in order to allow the political coup to be successful. In particular, the plotters may bribe the adviser into betraying the dictator. In ES, the adviser betrays the dictator by reporting a weak threat when it perceives a strong plot. If the coup turns out to be truly strong, then the dictator who did not buy protection is overthrown and the adviser receives the bribe promised by the plotting group. Of course, the disloyal adviser may not always be right. With some probability (decreasing in the competence of the the adviser), a disloyal adviser can perceive a strong threat when the threat is really weak. Assuming no weak threat can succeed as ES do, this means that an imperfectly informed adviser will not always participate in a successful plot. Indeed, if the dictator can learn about the composition of the plot when the coup fails, the adviser will most likely be punished in this case. In the end, ES show that it is generally suboptimal for the dictator to hire a perfectly informed adviser. They find that a less able agent is more likely to be chosen when strong plots are frequent, the cost of protection is low, the bribe offered by the plotting group is high, the political rent is high and the most severe punishment available to the dictator is low.

This paper borrows the basic framework introduced by ES, but simplifies the analysis by modifying some of the underlying assumptions. More tractable, our model leads to new predictions, reverses some of the original conclusions obtained by ES and reproduces some of their results.

Two major modifications distinguish this paper from ES. First, in the initial model of ES, the bribe offered to the adviser is stochastic from the point of view of the dictator. The dictator allocates some probability to the value of the bribe and consequently can not know with certainty whether his adviser stays loyal (or if the incentive compatibility constraint holds). In this context, the goal of the dictator is therefore to balance the probability that he will be betrayed (increasing with the competence of the adviser) with the probability that he will pay for useless protection (decreasing in the competence of the adviser). In what follows, we instead assume that both the adviser and the dictator can observe all the relevant variables, including the bribe offered to the adviser by the

plotting group.[1] In effect, the dictator knows the potential plotters he is facing so he is able to deduce what bribe they will offer. This stronger assumption has the advantage of considerably simplifying the analysis. It also leads to closed form solutions to the dictator's optimization problem and it does not require any knowledge of the bribe's probability distribution function. As a side effect, any uncertainty is removed in equilibrium since the dictator always observes whether the incentive compatibility constraint holds or not. The main inconvenience of our approach, compared to ES, is that our model can not explain treason since the adviser will always be loyal in equilibrium. However, this is not to say that the trade-off between loyalty and competence disappears. In our model, a more competent adviser will be willing to stay loyal only if the dictator offers him a higher reward. In effect, the trade-off we investigate is between the competence of the adviser and the reward that the dictator must pay to keep the loyalty of the adviser. Instead of quantifying loyalty through the probability that the dictator will be betrayed as ES, we measure it indirectly through the reward that the dictator must pay. Whereas ES suggest that hiring a more competent adviser is more *risky*, we take the alternative view that it is more *costly*. The goal of our model is therefore to put a price on loyalty, look at how this price changes depending on the context and illustrate its impact on the dictator's demand for competence.

Secondly, ES claim that an unconstrained dictator may not be able to actually choose the reward he should pay to a loyal adviser or the optimal punishment that should be administered when the adviser betrayed him. They argue that, from the point of view of the adviser, the dictator can not commit credibly to a particular reward or a limited punishment. *Ex post*, the dictator should find it optimal to renege on his *ex ante* promises and pay the smallest reward when the adviser stayed loyal or impose the largest punishment available when he was betrayed. This time-inconsistency problem implies that the adviser will most likely put very little weight on the dictator's promises. As a consequence, ES argue that both the reward and the punishment should be taken exogenously by the adviser and the dictator, depending on the ruler's track record and commitment possibilities. This paper departs sharply from ES by allowing the dictator to choose the reward paid to the adviser when he stays loyal. On theoretical grounds, the exogenous constraint on *ex post* payoffs discussed by ES only imposes an upper bound on the reward that the

[1] Of course, like ES, we assume that the dictator can not observe either the type of threat he is facing nor the signal received by his adviser.

dictator can credibly commit to. For example, the dictator may not be able to promise more than a reward $\bar{W}$ when the adviser stays loyal. In this case, any promise of a reward larger than $\bar{W}$ would not be credible *ex ante*. However, since a reward is not costless by definition, it may not be optimal for the dictator to promise $\bar{W}$ in the first place. For instance, the optimal reward that the dictator may want to commit to could be $W^* \leq \bar{W}$. Since $\bar{W}$ was a credible reward, it seems natural to think that $W^* \leq \bar{W}$ should also be a credible promise. Hence, as long as the dictator can credibly commit to some positive reward (up to a maximum $\bar{W}$) and the optimal reward turns out to be smaller that this threshold ($W^* \leq \bar{W}$), the dictator will be able to credibly promise this optimal reward. In light of this, it seems unfair, like ES did, to attribute to the dictator the maximum reward he can commit to (i.e. fix $W = \bar{W}$) and assume that no lower reward can be promised. It may very well be that the optimal reward is lower and therefore available to the dictator. For this reason, we assume in what follows that the dictator can choose the reward he will pay to an adviser who stays loyal and, more importantly, that the dictator can credibly commit to this reward. Where we converge with ES however, is that the equilibrium punishment level should be exogenous. *Ex post*, assuming that he can punish the adviser costlessly, the dictator will always have an incentive to inflict the most severe punishment available when the adviser betrays him. *Ex ante*, this is the punishment that the adviser will expect. As a consequence, the dictator will not be able to commit to an arbitrary punishment. Instead, the punishment level will be determined exogenously by the legal, constitutional and international constraints that the dictator faces.

The formal model is presented in the next section.

Chapter 3

The Model

Following ES, we assume that a dictator is facing a political threat in the form of a plot to overthrow him. The dictator must decide whether he should take costly precautionary measures to prevent the coup. Intuitively, the success of the plot will depend on the action of the dictator and the relative strength of his enemy.

The enemy that the dictator is facing can either be *strong* (with a probability q) or *weak* (with a probability $1 - q$). A weak plot is a plot who always fails, no matter if the dictator has implemented protective measures or not. That is to say:

$$P(\text{Successful Weak Plot}) = 0$$

For expositional simplicity, we assume on the other hand that a strong plot is always successful when the dictator does not buy extra protection and is never successful when precautionary measures are undertaken. In other words:

$$P(\text{Successful Strong Plot} \mid \text{No Protection}) = 1$$

$$P(\text{Successful Strong Plot} \mid \text{Protection}) = 0$$

Together, these probabilities obviously imply that no plot can succeed when the dictator undertakes precautionary measures.[1] To ensure that plotters can not know *ex ante* if their plot will succeed, we assume that plotters do not observe their type or the actions of

[1] Similar results are obtained with $P(\text{Successful Strong Plot} \mid \text{Protection}) = p$.

the dictator. This allows us to take the behaviour of the plotting group and the composition of the threats as being exogenously given. In that sense, the decision of the dictator has no deterring effects on the behaviour of the potential plotters.

When the coup or the plot is successful, the dictator loses power. When the coup fails, the dictator stays in power. When he stays in power, the dictator receives Y. If, on the other hand, the plot turns out to be strong and no extra precautionary measures were undertaken, the dictator loses power and receives nothing. Let C be the cost incurred by the dictator for implementing extra protective measures. Such measures can be either defensive or preemptive, but they are seen as being precautionary in the sense that they reduce the probability of a successful plot. For example, a dictator who is afraid to be assassinated can buy an armoured limousine, reduce the frequency of his public appearances or secretly monitor (and potentially assassinate) political opponents. The important point is that the dictator incurs an indivisible cost when he chooses to implement such measures.

Since precautionary measures are costly, the decision of the dictator to implement them or not will depend on the perceived threat level. When the threat is weak, no protection is needed. When the threat is strong on the other hand, the dictator needs extra protection if he wants to stay in power. Clearly, the dictator would like to know what type of threat he is facing. The problem of the dictator is that he can not himself distinguish between a weak and a strong plot. Nevertheless, unable to observe the true nature of the plot, the dictator has the possibility to hire an adviser (from a pool of advisers) who will be more able to judge the seriousness of the threat. In general, the adviser himself will be imperfectly informed. More precisely, an adviser of type θ will correctly recognize a weak threat with a probability θ. If we conceive the observation of the adviser as a signal, this translates into $P(\text{Weak Signal} \mid \text{Weak Threat}) = \theta$. On the other hand, we assume that the adviser is always able to recognize strong threats. Therefore, $P(\text{Strong Signal} \mid \text{Strong Threat}) = 1$. This assumption implies that a *loyal* adviser will never report a weak threat unless the plot is really weak. Hence, the dictator who follows the advice of a loyal adviser will never be overthrown by accident or because his adviser is incompetent.

Intuitively, the advantage of hiring a more competent adviser (with a higher θ) is that he will observe a strong threat less frequently when the threat is in fact weak. As a consequence, costly precautionary measures will be implemented less often when they

turn out to be unnecessary. In other words, the probability of a false positive is reduced when the adviser is more competent and θ is higher. This probability of a type II error is obtained using the Bayesian rule and is given by:

$$\begin{aligned} P(\text{Weak Threat} \mid \text{Strong Signal}) &= \frac{P(\text{Strong Signal} \mid \text{Weak Threat}) \cdot P(\text{Weak Threat})}{P(\text{Strong Signal})} \\ &= \frac{(1-\theta)(1-q)}{q+(1-\theta)(1-q)} \end{aligned} \tag{3.1}$$

Following this, we can also find directly:

$$P(\text{Strong Threat} \mid \text{Strong Signal}) = 1 - \frac{(1-\theta)(1-q)}{q+(1-\theta)(1-q)} = \frac{q}{q+(1-\theta)(1-q)} \tag{3.2}$$

The adviser may betray the dictator if he finds it is in his best interest to do so. For instance, suppose that the adviser perceives a strong plot but purposely reports a weak threat because he was promised a bribe R by the plotting group. If the dictator declines the extra protection following the advice of his counsel, then the dictator may be overthrown. In particular, if the plot turns out to be truly strong, the dictator will lose power. In that case, the adviser receives the bribe R. Conditional on the fact that the adviser observed a strong threat, this will happen with the probability given by equation (3.2). If the plot turns out to be weak instead, then the dictator blocks the coup and learns that his adviser betrayed him. In this case, the adviser is punished and loses F. *Ex ante*, this will happen with the conditional probability given in equation (3.1). Here, we follow ES by assuming that the punishment F can not be chosen by the dictator because no moderate (less than maximum) punishment can be credible *ex ante* from the point of view of the adviser. As opposed to ES, we also allow the dictator to observe the bribe R offered to the adviser by the plotting group.

To induce truth telling, the dictator must align the incentives of the adviser with his own. To achieve this, the dictator promises a reward W to the adviser if he stays loyal. In contrast to ES, we assume that the dictator is able to choose and then credibly commit to this reward W. Nevertheless, we assume that the dictator can not make the reward W conditional on the type of the threat. On theoretical grounds, this can be justified by the fact that, since the signal received by the adviser is not verifiable in practice, the dictator is unable to offer different rewards for each possible scenario. Instead, the dictator will offer the reward W to the adviser who stay loyal as long as he conserves political power.

Using equations (3.1) and (3.2), it is straightforward to show that betraying the dictator is relatively less risky for competent advisers because they are able to differentiate weak plots from strong plots more easily. Therefore, they expect to participate in failed coups less often. In other words, a highly competent adviser (associated with a higher θ) can identify when the dictator is in a position of weakness with a higher confidence level. Everything else being equal, the expected payoff of betraying the dictator consequently increases with the competence of the adviser. In turn, this implies that the dictator is facing a trade-off. On one hand, a more competent adviser will trigger a false alarm with a smaller probability. This will allow the dictator to pay C less often when the threat is weak and extra protection is not needed. On the other hand, a more competent adviser receives a correct signal more often and may therefore be tempted to betray the dictator. To prevent that, the dictator will have to offer a higher reward W if he wants to insure the loyalty of a more competent adviser.

From now on, we assume that the probability q, the cost of protection C, the maximum punishment available F, the political rent Y received by the dictator when he stays in power and the bribe R offered by the plotting group are common knowledge. Of course, the dictator does not observe the type of threat he is facing. This is why he hires an adviser. The goal of the dictator is to choose the competence level θ of his adviser and the associated reward W which maximize his expected payoff.

The timing of the game can be summarized as follows:

1. Nature draws a plot randomly. The plot is strong with a probability q and weak with a probability $1 - q$.

2. The dictator decides to hire an adviser or not. If the dictator does not hire an adviser, he can decide to buy protection or not. When he buys protection, the dictator receives $EV(\text{Buy Protection}) = Y - C$. When no protection is bought, the dictator expects to receive $EV(\text{No Protection}) = (1-q)Y$. If the dictator finds that it is optimal to hire an adviser, he hires an adviser with a competence level $\theta^* \in [0, 1]$ from a pool of candidates and commits to a reward W^*.

3. The adviser receives a noisy signal about the relative strength of the enemy. The dictator does not observe the signal received by his adviser.

4. The adviser is offered an exogenous bribe R from the plotters to allow the coup to

be successful.

5. The adviser decides to betray or stay loyal. A loyal adviser reports the true signal he received whereas a disloyal adviser reports a weak threat when the signal is strong.

6. Taking into account the signal reported by his adviser, the dictator decides to buy protection at a cost C or not.

7. The outcome of the coup is determined. The coup is blocked (and the dictator stays in power) if the plot turns out to be weak or if the dictator bought extra protection. In that case, the dictator receives a payoff Y and the composition of the plot is revealed to him. The dictator therefore learns whether his adviser betrayed him or not. The dictator punishes the adviser when he is betrayed or rewards the adviser who stayed loyal. Accordingly, the adviser loses F or receives W^*. On the other hand, the coup is successful if the plot turns out to be strong and the dictator did not buy protection. In that case, the dictator loses power and receives nothing. For his part, the adviser then receives the bribe R.

In general, there can be many equilibria depending on the parameter values. However, this paper is mainly concerned with a non-trivial equilibrium in which the dictator finds it optimal to hire an adviser and follow his advice (even when the incentive compatibility constraint does not hold).[2] The conditions under which this equilibrium holds are derived in what follows. Ultimately, we show that our results will be valid (and we will find interior solutions) as long as the cost of protection C is contained in:

$$\max\left\{qY,\ \frac{F^2}{q(R+F)}\right\} \leq C \leq \min\left\{\frac{(qY+F)^2}{4q(R+F)},\ \frac{R+F}{q}\right\}$$

Since a weak signal always translates into a weak coup and a weak coup is never successful, the adviser will never want to participate in the coup when he observes a weak signal. Whether the adviser reports a weak or a strong threat, the dictator always stays in power when the threat is weak. Hence, the adviser who observes a weak signal always receives the reward W promised by the dictator and is therefore indifferent between reporting any kind of threat when the signal is weak. In this case however, we assume

[2]If the dictator buys protection when a disloyal adviser reports a weak threat, the adviser can not successfully betray the dictator because no plot will succeed anyway.

that the adviser always tells the truth when he is indifferent between telling the truth or reporting a false signal. Therefore, the adviser will always truthfully report a weak threat when he receives a weak signal and, since $P(\text{Weak Signal} \mid \text{Strong Threat}) = 0$, the threat will materialize in a weak coup which will easily be crushed by the dictator.

Now, suppose that an adviser of type θ receives a strong signal and then chooses to report a strong threat to the dictator. Recognizing that the adviser never reports a strong threat when he receives a weak signal, the dictator can deduce that the adviser truly observed a strong plot and did not betray him. Using this information, the dictator can compare his payoff when he buys protection to his expected payoff when he does not protect himself. If the dictator buys protection at a cost C, he is assured to stay in power since no plot can succeed when the dictator buys protection. In this case, the payoff of the dictator is therefore $Y - C - W$. If the dictator does not buy protection and the signal of his adviser turns out to be right, then the coup succeeds and the dictator receives nothing. On the other hand, if the signal of the adviser turns out to be inaccurate and the coup is in fact weak, then the dictator receives a net payoff of $Y - W$. Given the fact that the adviser received a strong signal in the first place, this will happen with the probability in equation (3.1). To make the model relevant and the analysis tractable, we assume in what follows that the dictator will *always* find it optimal to listen to the advice of the adviser.[3] Here, this means that it should always be optimal for the dictator to buy protection when the adviser reports a strong signal. Algebraically, this requires:

$$Y - C - W \geq \frac{(1-\theta)(1-q)(Y-W)}{q + (1-\theta)(1-q)} \tag{3.3}$$

The inequality in (3.3) can be solved for the minimum competence level of the adviser which will make it optimal for the dictator to follow his advice and buy protection when he reports a strong threat. This minimum competence level is given by:

$$\underline{\theta} = \frac{1}{1-q}\left[1 - \frac{q(Y-W)}{C}\right] \tag{3.4}$$

Therefore, as long as the adviser has a competence level $\theta \geq \underline{\theta}$, the dictator will find it optimal to buy protection when the adviser reports a strong threat.

[3]Suppose that the dictator does not buy protection even when the adviser reports a strong signal but listens to the advice of his adviser when he reports a weak threat. Then, the dictator never buys protection. This is obviously a trivial solution to the dictator's problem and it does not require hiring an adviser.

Now, suppose that the adviser receives a strong signal but chooses to betray the dictator by reporting a weak threat. Since the dictator can observe that the adviser is willing to betray him (because he knows when the incentive compatibility constraint holds or not), the dictator does not infer anything from the type of threat reported by the adviser. Because a disloyal adviser always reports a weak threat no matter what signal he receives, the information of the adviser is useless from the point of view of the dictator. As a consequence, the *ex ante* probability of a strong coup remains q and the probability of a weak coup is still $1-q$ from the point of view of the dictator. In this context, if the dictator buys protection, he is assured to stay in power and receive a net payoff $Y-C$. On the other hand, if the dictator does not buy protection, he expects to be overthrown with a probability q. With a probability $1-q$ however, the coup will turn out to be weak and the dictator will be able to stay in power. The expected payoff is therefore $(1-q)Y$ in this case. The dictator does not pay the reward W under this scenario because he learns that he was betrayed by the adviser when he blocks the coup. Again, we force the dictator to follow the advice of his adviser by assuming that $(1-q)Y \geq Y-C$. That is to say, we assume that:

$$C \geq qY \tag{3.5}$$

When the condition (3.5) holds, it is never optimal for the dictator to buy protection when a disloyal adviser reports a weak threat. Moreover, this insures that the adviser has the *possibility* to betray the dictator. In effect, this assumption also implies that if the dictator has to make an uninformed decision, he will always decline protection and risk being overthrown instead of paying the cost C.

Now that we have established the conditions under which the dictator will follow the advice of his adviser, we can compare the expected payoff of the dictator when the adviser is loyal with the expected payoff of the dictator when the adviser chooses to betray. When the dictator observes that the adviser is disloyal (i.e. because the incentive compatibility constraint does not hold), he can not infer any usable information from the signal reported by the adviser because the adviser will always report a weak threat, no matter what kind of threat he actually observed. As a consequence, the dictator is forced to take an uninformed decision when the adviser is not loyal. As we already established, assuming that the condition in (3.5) holds, the dictator will find it optimal to decline protection and his expected payoff will be $(1-q)Y$ in this case. However, never buying protection does

not require hiring an adviser. For example, instead of hiring an adviser, the dictator can simply choose to always decline protection. In this case, his expected payoff would again be $(1-q)Y$. Therefore, hiring a disloyal adviser is equivalent to not hiring anyone in the first place. This implies that the dictator would never hire a cheating adviser. Hence, the adviser will have to be loyal in any equilibrium in which the dictator hires one.

When the adviser is loyal in contrast, the dictator has the potential to reduce the expected cost of protection. This is because the dictator can potentially infer some valuable information when a loyal adviser reports a weak threat. *Ex ante*, a loyal adviser with competence θ will report a strong threat with a probability $q + (1-\theta)(1-q)$. Since we already assumed that the dictator follows the advice of his adviser in equilibrium, the dictator buys protection at a cost C in this case. In the other instances however, the adviser is expected to report a weak threat and the dictator will not buy protection. Since the dictator is never overthrown and the adviser is loyal by assumption, the dictator will receive the political rent Y and pay the reward W under all scenarios. When the adviser is loyal, the dictator's expected payoff is therefore $Y - [q + (1-\theta)(1-q)]\,C - W$.

Of course, the model becomes relevant only when it is optimal to hire a loyal adviser in the first place. The strategy of never buying protection and not hiring anyone is a trivial solution to the dictator's optimization problem. To insure that it will be optimal for the dictator to hire a loyal adviser, we impose the condition $Y - [q + (1-\theta)(1-q)]\,C - W \geq (1-q)Y$. In terms of the competence level θ, this implies:

$$\theta \geq \frac{1}{1-q}\left[1 - \frac{q(Y-W)}{C}\right] + \frac{W}{C} = \underline{\theta} + \frac{W}{C} \tag{3.6}$$

Using the condition in (3.5), it is easy to show that the term in brackets is necessarily positive and therefore the overall expression is also positive. Intuitively, when the competence level of the adviser is too low in equilibrium, it is optimal for the dictator to never buy protection because the signal reported by the adviser is too noisy. Assuming that the reward W is positive, the condition in (3.6) implies that if the dictator finds that it is optimal to hire an adviser, it will also be optimal to follow his advice and buy protection when he reports a strong threat. In other words, when $W \geq 0$, the condition (3.6) will hold only if the condition (3.3) also holds. From now on, we assume that the condition (3.6) holds.

Having established that the dictator will hire an adviser and follow his advice, we can now investigate how the competence level of the adviser will be chosen and how the dictator

will compensate the adviser to guarantee his loyalty. Obviously, it is the behaviour of the adviser who observes a strong threat which is of interest for the dictator. More precisely, the dictator is interested to know what reward he must offer to his adviser in order to keep him loyal. By definition, an adviser stays loyal if he reports a strong plot when he receives a strong signal. Therefore, to ensure the loyalty of the adviser, the dictator must make sure that the adviser does not find it optimal to declare a weak threat when he receives a strong signal. More precisely, the dictator offers a reward W to the adviser who stays loyal such that the expected payoff of betrayal is lower or equal to this reward. Given the probability q, the bribe R offered by the plotters, the punishment F for participating in a failed coup and his own competence level θ (which is observed both by himself and the dictator), the minimum reward W for which a typical adviser will choose to remain loyal is given by:

$$\begin{aligned} W(\theta) &= \left[\frac{q}{q+(1-\theta)(1-q)}\right]R - \left[\frac{(1-\theta)(1-q)}{q+(1-\theta)(1-q)}\right]F \\ &= \frac{qR-(1-\theta)(1-q)F}{q+(1-\theta)(1-q)} \end{aligned} \tag{3.7}$$

With the exception of the stochastic component, the equation (3.7) corresponds to the same incentive compatibility constraint (ICC) derived by ES. Assuming that the dictator follows the advice of his adviser, the dictator will always stay in power when his adviser is loyal. Hence, a loyal adviser can expect to receive the reward W with certainty. In contrast, a treacherous adviser would never receive the reward W when the dictator follows his advice. This is because a disloyal adviser, by definition, always reports a weak threat when he receives a strong signal. With the probability given in (3.2), the strong signal received by the treacherous adviser is accurate and the coup turns out to be strong. Under the assumption that the dictator finds it optimal to not buy protection when the adviser is disloyal (and always reports a weak threat), the coup is successful in this case. The dictator then loses power and the adviser receives the bribe R. In the alternative, the signal can turn out to be incorrect and the coup fails because it is weak. In this case, the dictator stays in power and punishes the adviser who participated in the failed coup. The adviser loses F in that case. Taking into account that the adviser observed a strong signal, this will happen with the probability in (3.1). As opposed to ES, we assume that the dictator observes R. This implies that the dictator is able to observe when the ICC holds

and knows when his adviser is willing to betray him. For most reasonable parameter values, the incentive compatibility constraint will hold with equality since the dictator could simultaneously pay a lower reward W and hire a more competent adviser when it is not binding, therefore unambiguously increasing his expected utility. The equation (3.7) therefore gives the reward that the dictator will have to commit to as a function of the exogenous probability q, the bribe R, the punishment F and the competence level θ.

Here, the amount of the bribe is likely to capture the value of being in power for the plotting group, its monetary resources and possibly the credibility of its commitment from the point of view of the adviser. *Ceteris paribus*, a more competent adviser (with a higher θ) will be willing to betray the dictator for a lower bribe R. Similarly, for a given bribe, the dictator will be able to hire a more competent loyal adviser only if he offers a larger reward W or if the available punishment F is larger.

Assuming that the dictator can punish the adviser costlessly when it is revealed he was betrayed, the optimal punishment from the point of view of the dictator is unbounded. Intuitively, a larger punishment F relaxes the incentive compatibility constraint given by equation (3.7) at no cost for the dictator. In practice however, even the most brutal dictators are likely to be constrained in the punishment they can inflict on an adviser who betrayed them. These constraints can be constitutional (most likely in a democracy), physical (because of the adviser's limited liability) or external (imposed by an international organization or enforced by a foreign country). Human rights and international laws are examples of external constraints. In practice, an adviser who participates in a failed coup can be held liable only to some limited extent. Beyond executing a disloyal adviser or confiscating all its wealth, the dictator can hardly impose infinitely harsh punishments. This suggests that the liability of the adviser may be limited. Finally, some laws may prevent the dictator from executing some of his own citizens. In any case, the main point here is that the dictator will choose the most severe punishment available to him. In turn, the set of viable punishments will be determined by the constitutional organization of the country, its strategic position with respect to the rest of the World and the maximum liability of the adviser. For these reasons, we assume that the punishment F is exogenous. In general, we expect that the set of sanctions available to the dictator (F) will be smaller in countries where basic human rights are enforced and respected or political regimes on which diplomatic pressure is applied.

Ceteris paribus, the reward W that the dictator will have to pay to keep an adviser

loyal is increasing with the bribe R and decreasing in the punishment F. This is not surprising since the reward aims to offset the bribe R offered by the plotting group and the punishment F makes it more costly for the adviser to lie. Also, we find that the reward W is strictly increasing in the competence level θ. Differentiating partially the equation (3.7) with respect to the competence level θ yields:

$$\frac{\partial W(\theta)}{\partial \theta} = \frac{q(1-q)(R+F)}{[q+(1-\theta)(1-q)]^2} > 0 \tag{3.8}$$

Intuitively, hiring a more competent adviser imposes two distinct but related costs on the dictator at the margin. First, as shown by equation (3.2), the probability that a strong signal will translate in a strong coup increases with the competence of the adviser. Therefore, a more competent adviser is more confident that he will actually get the bribe R if he betrays the dictator. To compensate for that, the dictator has to offer a larger reward. Similarly, equation (3.1) shows that the probability of receiving the wrong signal is decreasing when the adviser is more competent. Therefore, a more competent adviser expects to participate in a failed coup (and be punished) less often. Because of these two effects, the dictator has to offer a larger reward W if he wants to hire a more competent adviser. Most notably, the required increase in the reward W will be larger at the margin when either the bribe R or the punishment F are larger.

Assuming that the dictator is unable to extract money from an adviser who stays loyal, we require that the reward W be positive. On theoretical grounds, this could be justified by the fact that advisers are wealth constrained or must expect *ex ante* to receive at least their reservation utility (which we normalize to zero). In any case, it is unlikely that an agent would ever enter a relationship in which he has to pay to be loyal. Algebraically, the reward W in (3.7) will be positive as long as:

$$\theta \geq 1 - \frac{qR}{(1-q)F} \tag{3.9}$$

As a special case, the participation constraint in (3.9) will always hold when $F/(R+F) \leq q < 1$ because then the expression on the right side becomes negative and θ is defined as a probability contained between 0 and 1. Intuitively, when the punishment F is very large, even a very competent adviser finds that it is suboptimal to betray the dictator. In this case, the dictator could theoretically force the adviser to pay him for the privilege of remaining loyal (and not be killed for example). However, if the adviser has some outside

option which costs him nothing, it would always be preferable to resign. The condition (3.9) prevents such extreme situations and insure that the adviser will receive a positive remuneration.

Recall that the probability of receiving a strong signal when the threat is truly weak is decreasing in the competence of the adviser (θ). This implies that if the dictator hires a more competent adviser, he will be able to pay C less often. In the limiting case where the agent is perfectly informed ($\theta = 1$), the adviser will never perceive a strong signal when the threat is weak. This will allow the dictator to implement the precautionary measures only when the threat is strong and measures are really needed. On the other hand, a more competent adviser requires a larger reward W to stay loyal, as demonstrated by (3.8). The goal of the dictator is therefore to balance the principal costs and the benefits of hiring a more competent adviser.

Assuming that the condition (3.9) holds, the reward W will be positive in equilibrium. In turn, the condition (3.6) insures that it is optimal for the dictator to hire a loyal adviser and always follow his advice in equilibrium. In this context, the optimal strategy of the dictator is to hire the most competent adviser who will stay loyal, given some optimal reward W. Assuming that the adviser stays loyal, the expected utility of the dictator is:

$$\begin{aligned} EV(\theta, W(\theta)) &= q(Y-C) + (1-q)(1-\theta)(Y-C) + (1-q)\theta Y - W(\theta) \\ &= Y - [q + (1-\theta)(1-q)]\, C - W(\theta) \end{aligned} \tag{3.10}$$

Intuitively, a loyal adviser of type θ will report a strong threat with a probability $P(\text{Strong Signal}) = q + (1-\theta)(1-q)$. When that happens, the dictator buys extra protection at a cost C. Since he always stays in power when his adviser is loyal, the dictator gets Y and pays the reward W no matter what kind of threat he is facing.

As long as the constraint in equation (3.7) is satisfied, the dictator is guaranteed the loyalty of his adviser. The dictator therefore chooses the reward W and the competence level θ which maximize his expected utility in (3.10) subject to the constraint given by (3.7):

$$\max_{\theta \in [0,1], W \geq 0} EV(\theta, W(\theta)) = Y - [q + (1-\theta)(1-q)]\, C - W(\theta)$$

$$\text{s.t. } W(\theta) = \left[\frac{q}{q + (1-\theta)(1-q)}\right] R - \left[\frac{(1-\theta)(1-q)}{q + (1-\theta)(1-q)}\right] F$$

The constrained optimization problem faced by the dictator can be transformed into an unconstrained maximization problem by substituting equation (3.7) into (3.10). The expected value of the dictator then becomes:

$$EV(\theta) = Y - [q + (1-\theta)(1-q)]\, C - \left[\frac{qR - (1-q)F}{q + (1-\theta)(1-q)}\right] \tag{3.11}$$

It is a matter of algebra to show that the function $EV(\theta)$ in (3.11) is strictly concave in the competence of the adviser θ on the relevant interval (i.e. θ between 0 and 1). The proof is in the appendix. The expected payoff of the dictator is maximized when:

$$\begin{aligned} \frac{\partial EV(\theta^*)}{\partial \theta} &= (1-q)C - \frac{\partial W(\theta^*)}{\partial \theta} \\ &= (1-q)C - \frac{q(1-q)(R+F)}{[q + (1-\theta^*)(1-q)]^2} = 0 \end{aligned} \tag{3.12}$$

Hiring a more competent adviser allows the dictator to save on protection because it allows him to pay C less often. This marginal benefit is captured by the first term $(1-q)C$. In counterpart, a marginally more competent adviser requires a higher reward to stay loyal. This extra cost for the dictator is given by the right hand side of equation (3.8). The marginal cost captures the fact that a more competent adviser receives a wrong signal less often. This contributes to increase the cost of hiring an adviser with a higher competence level since a more competent adviser expects to be successful more often when he betrays the dictator.

Solving for the optimal competence level θ^* using the first-order condition, we find that a maximum is achieved for:

$$\theta^*(q, R, F, C) = \frac{1}{1-q}\left[1 - \sqrt{\frac{q(R+F)}{C}}\right] \tag{3.13}$$

Equation (3.13) gives the optimum competence level of the adviser which is equal, by definition, to the probability in equilibrium that the adviser will observe a weak signal when the threat is truly weak. The term inside the brackets can be interpreted as the probability that the adviser will receive a weak signal in equilibrium.

Intuitively, the expected benefits of having a more competent adviser increase with the cost of protection C. Incidentally, like ES, we find a positive relationship between the cost C and the competence level of the adviser in equilibrium. Moreover, the optimal

competence level of the adviser decreases with the bribe R and the punishment F. The intuition here is that a more competent adviser is punished less often because, by definition, he participates in a failed coup less often. In the limiting case, a perfectly omniscient adviser will never be punished since he will know with certainty whether the coup will fail or not. Hence, the deterring effect of the punishment decreases with the competence level of the adviser. The larger the punishment F, the more this will tighten the constraint in (3.7). This is why equation (3.13) basically stipulates that a dictator which is not able to impose harsh punishments will find it optimal to hire more competent advisers. A higher punishment F makes it more costly at the margin to hire a more competent adviser.

Hitler was well-known to be a brutal leader. Hence, he found it was optimal to introduce mediocrities into his circle of advisers because he knew that the deterring effect of his brutality would be greatly reduced with competent subordinates. In the words of Speer (1970), Hitler was practising a form of *negative selection*, promoting loyalty over competence. At the opposite, in Brazil during the 1950's and 1960's, the presidencies of Janio Quadros and Joao Goulart were much more moderate. Both Quadros and Goulart were constrained constitutionally and a system of checks and balances was emerging at that time. As opposed to Hitler during the Third Reich, Quadros and Goulart would not have been able to assassinate an adviser who expressed doubts about their economic or social programs. Quadros and Goulart therefore had access to a much smaller set of punishment. In this context, it was optimal for them to hire relatively more competent advisers. This is how the visionary Roberto Campos was appointed Planning Minister, a position that he would never have obtained under the more brutal regimes of Stalin, Hitler or Saddam Hussein.

Conversely, each incremental shift in the competence of the adviser increases the probability that the strong signal will materialize into a strong coup and the adviser will receive the bribe R. The higher the bribe, the more this will tighten the constraint. It follows that a large bribe R makes it relatively costly to hire a more competent adviser at the margin. Hence, rulers facing relatively affluent opposition groups or parties which put a very high value on political power should find it optimal to hire less competent advisers, everything else being equal.

The Palestinian President Yasser Arafat was well known to base his choice of ministers mainly on loyalty considerations (as opposed to competence) when he was forming

his political cabinets. Nominations were often the result of political patronage and ineptitude was frequent among the nominees. The fact that Arafat and his government allowed the level of violence between Palestinian protesters and Israelis to escalate is merely one symptom of this powerlessness. In sharp contrast to Arafat however, the new Palestinian cabinet formed in February 2005 by President Mahmoud Abbas was dominated overwhelmingly by professional appointees. Most newcomers in the cabinet were experts in their field. Ten out of 24 ministers held doctorates and several had master's degrees. The Abbas cabinet included, among others, a medical doctor, a lawyer and several engineers. In the words of some observers, the ministers under Abbas were chosen mainly for their expertise rather than their political loyalty. From the point of view of an outsider, it may seem strange that President Abbas found it was optimal to hire competent people whereas President Arafat, governing the same authority, found it was optimal to choose potentially loyal but more inept people instead. One plausible explanation, we believe, is that the environment in which Arafat and Abbas governed were widely different. One one hand, Arafat had a complicated past and held strong political views. Because of his views, Arafat was often opposed to Israel on several issues. Confrontation was routine and conflicts were common. Faced with what he considered like a very affluent enemy, Arafat arguably felt more threatened. In the context of our model, Arafat must have conceived the (potential) bribe R to be very high. Because of this, he may have felt that it was optimal to hire more loyal, less competent ministers and advisers. Abbas on the other hand, was viewed by Israel (as well as the United States) as a likely ally in the fight against Palestinian terrorism and militant groups supporting it. Hence, the Israeli threat that Arafat faced while he was in power was attenuated under Abbas. Compared to Arafat, Abbas must therefore have conceived the bribe R to be relatively lower. In turn, faced with less affluent enemies, Abbas may have found that it was optimal then to hire more competent subordinates.

Although ES also find that the adviser is less competent at the optimum when the bribe R is high, our model leads to a completely different conclusion regarding the relationship between the maximum punishment F that can be inflicted to a treacherous adviser and his competence in equilibrium. In the first part of their paper (before they rely on adverse selection), ES suggest that the dictator's best choice is to hire a more competent adviser when he has access to harsher punishments. In contrast, as our previous discussion indicates, we show here that it is actually optimal to hire less competent advisers when

the punishment F is larger.[4] Because he can choose the reward W paid to a loyal adviser, the dictator finds that the cost of hiring a marginally more competent adviser becomes higher when the punishment F is larger. Hence, in our model, a more brutal dictator will tend to hire less competent advisers, everything else being equal.

By construction, the competence level of the adviser at the optimum is constrained to be larger than zero and smaller than one. Algebraically, this requires:

$$q(R+F) \leq C \leq \frac{R+F}{q} \tag{3.14}$$

Intuitively, when the cost of protection C is sufficiently small, it is useless to hire even a minimally competent adviser because the potential savings are too small. On the other hand, when the cost of protection is sufficiently high, the dictator would like to hire an extremely competent adviser because the marginal benefit of hiring a more competent adviser is very high. In practice, the condition in (3.14) constrains the cost of protection to be in a range where the dictator finds it optimal to hire a moderately competent adviser (i.e. $0 \leq \theta^* \leq 1$).

Substituting the solution for θ^* back in (3.7), we get the optimal reward W^* the dictator will commit to:

$$\begin{aligned} W^*(q,R,F,C) &= \left[\frac{q}{q+(1-\theta^*)(1-q)}\right]R - \left[\frac{(1-\theta^*)(1-q)}{q+(1-\theta^*)(1-q)}\right]F \\ &= \sqrt{q(R+F)C} - F \end{aligned} \tag{3.15}$$

As stated above, the dictator will want to hire a more competent adviser when the cost of protection C is larger. However, a more competent adviser will stay loyal only for larger reward W. Hence, the optimal reward is increasing in C as well. As expected, the optimal reward that the dictator will commit to is increasing with the bribe R. In practice, the dictator is bidding against the plotters for the loyalty of his adviser. When the plotting group offers a larger bribe, the dictator must therefore offer a larger reward

[4] To reach the same result, ES have to rely on the idea that highly skilled agents may self-select out of the labour market if the dictator is too brutal. Compared to ES, our approach has the advantage of not relying on the Akerlofian argument that competent advisers are not *available* on the market when the punishment is too severe. In our model, it is strictly the underlying moral hazard problem which explains why brutal regimes tend to incorporate more mediocre individuals.

W. Finally, the optimal reward $W^*(q, R, F, C)$ will be decreasing in the size of the worst punishment available to the dictator as long as:

$$\frac{\partial W^*}{\partial F} = \frac{1}{2}\sqrt{\frac{qC}{R+F}} - 1 < 0 \tag{3.16}$$

Assuming that the condition (3.14) holds, this will always be the case. Intuitively, the reward W and the punishment F are substitutes when it comes to incite truth-telling. When the punishment is larger, a smaller reward is needed to convince an adviser with a given competence level to stay loyal. Moreover, since the optimal competence of the adviser is actually lower when the punishment F is large (as is shown by equation 3.13), the reward will fall by even more.

Substituting the solutions for $\theta^*(q, R, F, C)$ and $W^*(q, R, F, C)$ in the objective function, we find the expected payoff of the dictator in equilibrium. Assuming that the conditions in (3.9) and (3.14) hold, we have:

$$\begin{aligned} EV^*(q, R, F, C) &= Y - [q + (1 - \theta^*)(1 - q)]\, C - W^* \\ &= Y - 2\sqrt{q(R+F)C} + F \end{aligned} \tag{3.17}$$

Not surprisingly, the expected value of the dictator is decreasing in the cost of protection C, the probability of a strong threat q and the bribe R offered to the adviser. All these variables act as constraints on the dictator's choice or contribute to increase his cost in equilibrium. Moreover, $EV^*(q, R, F, C)$ will be increasing with the size of the punishment F if:

$$\frac{\partial EV^*}{\partial F} = 1 - \sqrt{\frac{qC}{(R+F)}} > 0 \tag{3.18}$$

Again, assuming that the condition (3.14) holds, this will always be the case. Even though he will not hire an adviser as competent, an unconstrained tyrant who can exert larger punishments on its citizens will need to offer a much lower reward, as shown by equation (3.15). Overall, this will make him better off (on average) than a constrained dictator who can not impose very harsh punishments but hires a more competent adviser.

For future reference, the constraints implied by our initial assumptions are summarized here. First, it will be optimal to hire an adviser and to follow the advice of this adviser only

when the condition in (3.6) holds. Moreover, it should never be optimal for the dictator to always buy protection. This is what the constraint (3.5) implies. In parallel, the reward W is constrained to be positive so the participation constraint in (3.9) also applies. Also, the competence level of the adviser at the optimum is constrained to be larger than zero and smaller than one. This is ensured as long as the constraint (3.14) holds. Of course, we are interested in the binding constraints. Using the condition in (3.5) and the fact that the reward is constrained to be positive in equilibrium, it is easy to see that the condition (3.6) already implies that the competence level of the adviser will be larger than zero. In turn, this means that the lower bound of the restriction (3.14) will not be binding. Similarly, we already established that equation (3.6) implies (3.5). Replacing θ and W by the solutions for θ^* and W^* respectively, we can write everything in terms of the cost of protection C. For example, the constraint in (3.6) becomes $C \leq (qY + F)^2/4q(R + F)$ and (3.9) becomes $C \geq F^2/q(R + F)$. For our initial assumptions to be valid, the cost of protection C therefore needs to be contained in:

$$\max\left\{qY, \frac{F^2}{q(R+F)}\right\} \leq C \leq \min\left\{\frac{(qY+F)^2}{4q(R+F)}, \frac{R+F}{q}\right\}$$

This is the same constraint that we introduced earlier. It will hold for a non-empty, non-trivial set of reasonable parameter values. For example, when $q = 0.36$, $R = 49$, $F = 32$, $C = 56.25$ and $Y = 150$, the optimal competence of the adviser is $\theta^* = 0.4375$, the associated reward is $W^* = 8.5$ and the expected value of the dictator is $EV^* = 101$ in equilibrium. By comparison, the dictator can expect a payoff of only $EV(\text{No Protection}) = (1-q)Y = 96$ if he does not buy protection or $EV(\text{Protection}) = Y - C = 93.75$ if he always buys protection. In fact, given $q = 0.36$, $R = 49$, $F = 32$ and $Y = 150$, our assumptions will continue to hold as long as the cost of protection is contained in $54 \leq C \leq 63.4$. If $q = 0.32$ instead, then the relevant range becomes $48 \leq C \leq 61.7$.

Interestingly, the solutions for θ^* and W^* in (3.13) and (3.15) suggest that the dictator would find it optimal to hire less competent advisers and pay them a higher income in regimes where bribes are more generous. In effect, a marginal increase in the bribe R reduces the optimal competence level θ^* as shown by equation (3.13). Moreover, equation (3.15) implies that the dictator will pay a higher reward W^* to his adviser when the bribe is higher. In equilibrium, we could therefore observe that less competent advisers receive a higher compensation in regimes where plotting groups are more affluent or where the anticipated political rent is higher, *ceteris paribus*. Similarly, the parameter values for R,

F and C presented above also imply that the income of the adviser W^* will be increasing in q while his optimal competence level θ^* will be decreasing in q. Again, this suggests that less competent advisers may earn more in equilibrium when the opposition groups are more powerful and the proportion of strong threats is higher. Empirically, these findings imply that a study of the remuneration in authoritarian regimes should ideally control for the wealth or the relative power of the political opposition groups since it may simultaneously affect the competence and the income of the advisers working for the dictator.

Chapter 4

Reform Implementation and Competence

The reasons offered by the field of political economy to explain why underdeveloped countries are not adopting already existing technologies, implementing welfare-improving reforms or embracing more efficient institutions are numerous. Among others, resistance to reforms is believed to come from economic losers (Mokyr, 1992), political losers (Acemoglu and Robinson, 2000), political stupidity and myopia (i.e. governments ignore the effects of distortions on the economy), endogenous political participation (Bourguignon and Verdier, 2000), exogenous constraints on punishments (Rubinchik-Pessach and Wang, 2005) and individual-specific uncertainty (Fernandez and Rodrik, 1991). Here, we show how the framework presented in the previous section can be extended to explain why some rulers systematically oppose globally beneficial institutional changes.

The political losers hypothesis formalized by Acemoglu and Robinson (2000) is based on the idea that the introduction of new technologies (and economic changes in general) may affect the distribution of political power. For example, a change in economic institutions may accelerate economic growth but also enrich groups that could potentially contest political power in the future. To protect their source of income and rents, rulers may oppose such reforms. In this context, inefficient economic institutions arise from the desire of political elites to protect their political power. In general, the political losers hypothesis predicts that an institutional setup encouraging investment and the adoption of new technologies may be blocked by incumbent rulers when they fear that this process

of growth and social change will make it more likely that they will be replaced by other interests. The main contribution of Acemoglu and Robinson (2000) is to show that the effects of economic change on political power, not on economic rents, should determine whether technological advances and economic reforms are blocked. Rulers will tend to oppose reforms which imply an erosion of their political power. At the opposite, these same rulers have no incentive to block progress when they maintain their political power (Acemoglu and Robinson, 2000). The goal of this section is to investigate how imperfect information and loyalty considerations may affect reform implementation. From Acemoglu and Robinson (2000), we borrow the basic insight that some reforms may create political losers, even if such reforms are socially beneficial overall.

A dictator has the possibility of implementing a welfare-improving reform. Following our initial framework, we assume that reforms can be of two types. A reform can be *destabilizing* (with a probability q) or *politically neutral* (with a probability $1-q$). A politically neutral reform is harmless in the sense that it does not cause political instability and it allows the dictator to stay in power. A reform is destabilizing when it causes a shift in political power or creates uncertainty for the incumbent. For simplicity, we assume that the dictator is always overthrown when he implements a destabilizing reform but is able to stay in power otherwise. This can be translated in terms of probabilities as $P(\text{Losing Power} \mid \text{Neutral Reform}) = 0$ and $P(\text{Losing Power} \mid \text{Destabilizing Reform}) = 1$. When he stays in power, the dictator receives Y. On the other hand, if a destabilizing reform is implemented, the dictator loses power and receives nothing.

As before, we assume that the type of the reform is unobserved by the incumbent dictator. The dictator therefore hires an adviser to help him decide whether the reform should be implemented or not. The adviser observes a private signal about the type of the reform. To capture the fact that different advisers may be more or less informed, we attribute to the adviser a competence level θ. Here, we define the competence level of the adviser as being the probability that he will receive a "politically neutral" signal when the reform is really politically neutral. That is to say, $P(\text{Neutral Signal} \mid \text{Neutral Reform}) = \theta$. When the reform is politically destabilizing, we assume that the adviser always perceives a destabilizing signal. Hence, $P(\text{Destabilizing Signal} \mid \text{Destabilizing Reform}) = 1$.

To stay in power, the dictator must block destabilizing reforms. We call C the cost incurred by the dictator to block a reform. This cost could capture the fact that the dictator may be forced to work later at night, bribe judges or assassinate some citizens to

prevent the implementation of the reform, for example. Moreover, blocking an economically beneficial reform reduces the tax base and therefore potentially reduces the political rent. The cost C should reflect that. As before, the main point is that the dictator incurs an indivisible cost C when he blocks a reform.

Since blocking reforms is costly, the decision of the dictator to block them or not will depend on the perceived type of the reform. To reduce waste, the dictator aims to allow politically neutral reforms. Intuitively, the advantage of hiring a more competent adviser (with a higher θ) is that he will observe a destabilizing reform less frequently when the reform is in fact harmless (neutral politically). As a consequence, less reforms will be blocked. In other words, the probability of a false positive is reduced when the adviser is more competent and θ is higher. As in our initial framework, this probability is obtained using the Bayesian rule. It is given by:

$$P(\text{Neutral Reform} \mid \text{Destabilizing Signal}) = \frac{(1-\theta)(1-q)}{q+(1-\theta)(1-q)} \tag{4.1}$$

Similarly, we can find:

$$\begin{aligned} P(\text{Destabilizing Reform} \mid \text{Destabilizing Signal}) &= 1 - \frac{(1-\theta)(1-q)}{q+(1-\theta)(1-q)} \\ &= \frac{q}{q+(1-\theta)(1-q)} \end{aligned} \tag{4.2}$$

This probability in (4.1) is the same as the probability $P(\text{Weak Threat} \mid \text{Strong Signal})$ given in equation (3.1). The probability in (4.2) is the same as the probability given in (3.2).

Suppose that the adviser is promised a bribe R by the winners of the reform[1] to report a politically neutral reform even when he observes a destabilizing signal. Again, we allow the the dictator to induce truth telling by promising a reward W to the adviser if he stays loyal. When he hires an adviser, the dictator faces the same trade-off as before. On one hand, a more competent adviser will observe a destabilizing reform less often. This will allow the dictator to pay C less often. On the other hand, a more competent adviser receives a correct signal more often and may therefore be tempted to betray the dictator

[1]These winners can be economic winners (i.e. capital owners) or political winners (i.e. opposition groups that benefit from the reform).

by reporting a weak plot when it really perceives a strong threat. Because they are able to identify harmless reforms more easily, competent advisers expect a higher return when they betray the dictator, *ceteris paribus*. As a consequence, they must be offered a higher reward to stay loyal. Competence, from the point of view of the dictator, is simultaneously a source of savings and costs.

As before, the minimum reward that the dictator will have to commit to is given by equation (3.7). Similarly, the expected value of the dictator is again given by equation (3.10). Since the objective function and the incentive compatibility constraint are the same as in the original problem, the solution to the new dictator's optimization problem is also the same. Accordingly, the optimal competence level of the adviser is given by (3.13) while the corresponding reward is given by (3.15). Hence, the same conclusions hold both in the context of a direct political threat and a politically costly reform.

Extending our previous results, we can find the proportion of reforms which will be implemented. For future reference, we call this fraction Γ. Under our initial assumptions, the adviser is always loyal in equilibrium and the dictator always follows the advice of his adviser in equilibrium. In turn, this implies that the ruler will implement a reform only when the adviser announces that it is an harmless, politically neutral reform. *Ex ante*, given the optimal strategy of the dictator, this will happen with the probability:

$$\begin{aligned}
\Gamma \equiv P(\text{Neutral Signal}) &= 1 - P(\text{Destabilizing Signal}) \\
&= 1 - q - (1 - \theta^*)(1 - q) \\
&= \theta^*(1 - q) \\
&= 1 - \sqrt{\frac{q(R+F)}{C}} \leq 1 - q
\end{aligned} \tag{4.3}$$

Equation (4.3) gives the *ex ante* proportion of reforms that will be implemented in equilibrium. The second term can be interpreted as the proportion of reforms which will be blocked. Incidentally, a given reform is more likely to be blocked when the cost of blocking C is low, there are more destabilizing reforms (q is higher), the winners of the reform are more affluent (the bribe R is higher) or the ruler is more brutal (F is higher).

This result is clearly conform to the idea introduced by Acemoglu and Robinson (2000). When economic or institutional change is expected to be more destabilizing politically (i.e. q is higher), a given reform is less likely to be adopted *ex ante* (i.e. Γ is lower). Here

however, as opposed to Acemoglu and Robinson (2000), we are able to predict explicitly the proportion of reforms that will be blocked in equilibrium.

In a recent paper, Rubinchik-Pessach and Wang (2005) suggest that brutal tyrants may be more likely to successfully implement reforms than democratic leaders because they have the possibility, through harsher punishments, to impose the desired norm of behavior and induce truth-telling about transition costs. The main insight of Rubinchik-Pessach and Wang (2005) is that a switch from one (bad) equilibrium to another (good) equilibrium often imposes private costs on individuals. In this context, brutal dictators unconstrained by the international community may have an advantage because they could effectively coerce individuals into the required social changes. Rubinchik-Pessach and Wang (2005) therefore conclude that basic human rights (when they are enforced by the international community) can *reduce* the range of implementable reforms.

In contrast with Rubinchik-Pessach and Wang (2005), our model suggests that constraints on the executive which reduce the range of punishments available to the dictator can actually *expand* the set of reforms which will be implemented in equilibrium. The intuition is that a lower punishment F makes it optimal for the ruler to hire a more competent adviser, everything else being equal. In turn, more competent advisers are intrinsically less conservative in the sense that they perceive reforms to be destabilizing less often. Therefore, a more competent adviser can convince the dictator to implement an harmless reform more often. For example, when $q = 0.36$, $R = 49$, $F = 32$ and $C = 56.25$, an increase of 25% in the punishment F (from 32 to 40) has the potential to decrease the proportion of implementable reforms from $\Gamma = 0.28$ to 0.245. When $q = 0.40$, $Y = 2000$, $R = 500$, $F = 400$ and $C = 880$ instead, the same percentage increase in the punishment F leads to an adverse change of 0.034 in the proportion of reforms that are implemented (Γ decreases from 0.360 to 0.326). In the limiting case, a perfectly informed adviser (with competence $\theta = 1$) will always identify correctly a politically neutral, harmless reform. This means that every politically neutral reforms (there is a proportion $1 - q$ of them) would be implemented by the dictator. In our model, human rights and international pressures that reduce the maximum punishment available to the dictator have the capacity to increase the competence of the adviser. Since more competent advisers are less conservative, more reforms will subsequently be implemented by the dictator.

Chapter 5

Conclusion

Differences in economic institutions are likely to be a major source of cross-country differences in prosperity. Empirically, this view is supported by the fact that countries with better institutions and more secure property rights appear to grow faster (Hall and Jones, 1999) and have higher average incomes (Acemoglu, Johnson and Robinson, 2004). Even after controlling for the possibility that richer countries may prefer or can afford better institutions (reverse causality), empirical evidence suggests that some institutions do *cause* growth (Acemoglu, Johnson and Robinson, 2001). Since North Korea and South Korea were separated, they have experienced diverging paths of economic development even though the two regions are strikingly similar geographically: while communist North Korea stagnated, market-based South Korea is regularly referred to as one of the Asian growth miracle. These differences in economic achievements can plausibly be attributed to institutional differences (Acemoglu, Johnson and Robinson, 2004). Identifying the sources of these institutional differences is therefore highly relevant from an economic point of view.

This paper presents a simple framework useful to explain the internal workings of dictatorships. The underlying idea is that competence is both a source of costs and benefits for a ruler. In our model, a more competent adviser is desirable because he is able to distinguish weak threats from strong threats more often. This allows the dictator to buy costly protection or block economic reforms less often when it is unnecessary. On the other hand, an adviser can use his informational advantage in order to conspire against the dictator. Since a more competent adviser expects to participate in a failed coup less often, it is more tempting for him to betray the dictator. Therefore, more competent advisers also require a higher reward to stay loyal. In this context, the goal of the dictator is to

balance the principal benefits (less waste) against the principal costs (higher payment) of hiring a more competent adviser. The main contribution of our model is to underline the main factors susceptible to affect these costs and benefits. As a side effect, we are able to explain why some rulers prefer to hire more loyal (as opposed to more competent) subordinates and why some autocrats may block more reforms than others.

Ultimately, our model predicts that the competence level of the adviser should decrease with the bribe R and the punishment F but increase with the cost of protection C. Notably, this implies that more brutal rulers may find it optimal to hire less competent subordinates, everything else being equal. We also find that the income of the adviser in equilibrium is decreasing with the punishment F but increasing with the bribe R, the cost of protection C and the proportion q of strong threats. Together, these results lead to the counterintuitive idea that less competent advisers could earn more in regimes where the political enemies of the incumbent ruler are particularly affluent or where the value of being in power (for the political opposition) is potentially higher.

In a context where the dictator must decide whether to implement a potentially politically costly reform, we find that more competent advisers are less conservative in the sense that that they perceive reforms to be destabilizing less often. Therefore, a more competent adviser can convince the dictator to implement an harmless reform more often. Accordingly, any policy increasing the competence of the adviser in equilibrium has the potential to insure more reforms will subsequently be implemented by the dictator. In particular, we find that the enforcement of human rights in authoritarian regimes can increase the proportion of potentially implementable reforms by increasing the competence level of the adviser in equilibrium. In that respect, our findings support the widely held view that constraints on the executive can improve a country's economic performance.

Although the model presented in this paper is applied in the context of a political regime managed by an authoritarian ruler, the same framework could potentially be translated to reflect the loyalty-competence trade-off faced by any uninformed principal who is afraid to be betrayed by the agent he hires. In particular, the model could help explain the process through which firms hire and subsequently compensate senior executives. In this context, for instance, our analysis would imply that less competent executives may actually be paid more when the expected payoff of betraying their boss is higher, everything else being the same.

Appendix A

The Concavity of the EV(θ) Function

The expected payoff of the dictator in equilibrium is given by equation (3.11). That is:

$$EV(\theta) = Y - [q + (1-\theta)(1-q)]\,C - \left[\frac{q}{q + (1-\theta)(1-q)}\right] R + \left[\frac{(1-\theta)(1-q)}{q + (1-\theta)(1-q)}\right] F$$

We already established that the function $EV(\theta)$ has a single stationary point at $\theta^* = \left[1 - \sqrt{q(R+F)/C}\right]/(1-q)$. To prove that this is a local maximum, we need to show that the function is increasing on the left of θ^* but decreasing on the right of θ^*. To prove that the function is strictly concave in θ, we need to show that the second derivative is negative over the interval $\theta \in [0,1]$. Differentiating with respect to θ, we find:

$$\frac{\partial EV(\theta)}{\partial \theta} = (1-q)C - \frac{q(1-q)(R+F)}{[q + (1-\theta)(1-q)]^2}$$

When $\theta < \theta^* = \left[1 - \sqrt{q(R+F)/C}\right]/(1-q)$, the expected value function $EV(\theta)$ is increasing in θ. When $\theta > \theta^* = \left[1 - \sqrt{q(R+F)/C}\right]/(1-q)$, the expected value function $EV(\theta)$ is decreasing in θ. This confirms that $\theta^* = \left[1 - \sqrt{q(R+F)/C}\right]/(1-q)$ is a maximum.

The second derivative is given by:

$$\frac{\partial^2 EV(\theta)}{\partial \theta^2} = -\frac{2q(1-q)^2(R+F)}{[q + (1-\theta)(1-q)]^3} < 0$$

Assuming that $R + F > 0$ and $0 > q > 1$, the function $EV(\theta)$ will be strictly concave in the competence of the adviser θ. Hence, the solution for θ^* will be a global maximum.

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